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sis used to connect the facts is true to and explains them, then the honor is due to the eminent author. At any rate until the theory of descent is cast aside as useless and erroneous, the science of Comparative Anatomy, hitherto so unwieldy and overgrown with isolated data, must be thus simplified and vivified.

The student will not find the book easy reading, and he should not take it up until he has mastered books like Siebold's admirable Comparative Anatomy of the Invertebrates, Rolleston's Forms of Animal Life, Huxley's Anatomy of the Invertebrates and Vertebrates, and some good work on human anatomy. He will then be able to appreciate the theory of the origin of vertebrate limbs from the fins of fishes, and to understand Gegenbaur's theory of the skull, which will supplant, and indeed has already, Oken's, Goethe's and Owen's views based on the consideration of the skulls of the highly specialized bony fishes and mammals. The origin and specialization of the vertebrate column is also discussed in a clear and simple way, most valuable to the student, and so the formation of the different organs of special sense, the ear, eye and nose, as well as the rise and development of the brain.

We would especially recommend teachers of zoölogy, comparative anatomy and human anatomy to earnestly study this book, as it will aid in the difficult work of presenting the leading principles of animal morphology in a simple, condensed, logical way.

This English translation, which is on the whole well done, for the German of the original is difficult to translate, has appeared nearly contemporaneously with the improved second German edition. Gegenbaur has in this edition, removed the Brachiopoda from the Mollusca, and treated them as an independent "Phylum," equivalent to the Mollusca or Vertebrata, thus paying a silent compliment to our countryman, Morse. The Tunicates also stand as an independent Phylum or Branch. The sponges are still united with the Cœlenterates, a place which they may not hold in subsequent editions. The illustrations are choice, the typography excellent, and we would recommend the work as the most stimulating, suggestive and philosophical treatise the advanced student can find.

SCHMARDA'S ZOÖLOGY.¹—This is on the whole an excellent compendium of zoölogy, valuable for the lengthy introductory matter, relating to the following subjects in general zoölogy; inorganic and organic substances, statics and dynamics of formed material, histology, physiology, development, psychology, the geographical distribution of animals, methods of study, and the principles of zoölogical classification. The systematic portion begins with the lowest Branches and ascends to the highest, the author

¹*Zoölogie*. Von LUDWIG K. SCHMARDA. Zweite umgearbeitete Auflage. I. Band. mit 324 Holzschnitten, 1877. II. Band. mit 385 Holzschnitten, 1878. Wien, 8vo, pp. 486, 727.

adopting seven "Divisions" or Branches, *i. e.*, the *Protozoa*, *Cœlenterata*, *Echinodermata*, *Vermes*, *Condyllopoda* (Arthropoda), *Mollusca*, and *Vertebrata*.

The illustrations are numerous, very well engraved and printed, and most of them seem original and expressly designed for this work. The bibliography is full enough for the purposes of the work, and there is a voluminous index. The presswork, and paper, and wood cutting is above the average of work done in Vienna.

CONGRESSIONAL RECORD, FEB. 12.—GEN. GARFIELD ON GOVERNMENT SURVEYS.—The remarks of Gen. Garfield before the House of Representatives in committee on Tuesday last, on the subject of the United States Geological surveys, deserve notice. This is especially due, because Gen. Garfield has always been friendly to the scientific enterprises of our government. But on this occasion he presents himself in a different light, for while not desiring to be thought to be attacking the surveys, he really places himself in opposition to the essential basis of their work, *viz.*, pure science. He seems to entertain the idea that pure science is one thing, and economic science another; and that while the government may encourage the latter by pecuniary aid, it should not assist the former. Now it cannot be too strongly insisted that the two things here distinguished, are one and inseparable, and that economic science is largely pure science applied to practice, and that without pure science, it could not exist. For instance, a most important aid to mining prosperity is geology; but geology cannot exist without paleontology; yet paleontology must be regarded as in itself inapplicable to human economy. But on this science rests the determination and identification of rock strata everywhere. Now paleontology is itself impossible without zoölogy, a science of all others generally esteemed the most useless. Gen. Garfield's distinction is impossible. It is true that the General may derive some aid and comfort from Maj. Powell's report to the Secretary of the Interior, on the subject of the surveys, but the sentiments of that document are condemned by the scientific men of the country.

Gen. Garfield then says that science like religion should be left to be developed by "the people," and that government support works the same kind of injury to scientific progress that it does to religion. He then goes on to employ the following remarkable expressions: "Generally the desire of our scientific men is to be let alone * * and not to have the government enter the lists as the rival of private enterprise." "* I believe we have spent a large sum of that money upon an unwise system, and in a way which has tended to discourage the private pursuit of science by our people. We have made the government a formidable and crushing competitor of private students of science **." We suspect that such views will astonish the scientific men